Methods. The target dose is 50 Gy in 25 fractions for the PTVs. Only one patient was evaluated. We use a linear accelerator Siemens Artiste, with 160 leaves MLC of 5 mm width at isocenter. Patient orientation is supine and head towards gantry. The most suitable fixation is tilted plane anchored to treatment table and soft wedge under knees. XiO TPS and step & shoot segmentation were used. For both techniques we set a single shared isocenter, so we use half fields. For (1) we arrange the following fields: 6 MV anterior and 15 MV posterior with 15 MV auxiliary fields for axillary PTV; for the mammary chain one 6 MV anterior–posterior field and 3 oblique auxiliary fields of 6 MV and 15 MV. For the breast, we use 6 MV tangential fields and 15 MV auxiliary fields. For (2) we arrange the same as in (1) for axillary PTV; for the breast, 6 MV tangential fields and 15 MV auxiliary fields and 3 intensity modulated fields with tangential internal, anterior and oblique incidence angle.
Results. Improvements shifted from 37% to 34% in lung for V20, from 27% to 22% in heart for V33, and from 49 Gy to 49.6 Gy in PTV for mean dose. Nevertheless, mammary chain coverage (95% isodose volume) shifted from 94% to 91%.
Discussion. With technique 2, the left lung gets less dose than with technique 1. Although (1) got better coverage, (2) achieved better homogeneity and without hot points. It is feasible to deliver breast treatments combining IMRT and 3DRT, achieving less dose in the lung.

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Intraoperative electronic brachytherapy with Intrabeam® in breast cancer. A feasibility study

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Introduction. Over the last 10 years, intra-operative radiotherapy (IORT) has been used extensively in clinical trials but has yet to make a significant clinical impact on current breast cancer management strategies. There are currently two devices that fit the category of electronic brachytherapy. The Axxent® Electronic Brachytherapy System (Xoft Inc., Fremont, CA) using low-energy radiation at a high dose rate and the Zeiss Intrabeam® (Carl Zeiss Surgical Gmbh, Oberkochen, Germany) a mobile photon radiation system that procures a miniature electron beam driven X-ray source.
Purpose. We present our experience at Hospital de La Mancha Centro with IORT in selected patients using the Zeiss INTRABEAM® system.
Materials and methods. We have analyzed 15 patients across from May to December 2011. Depending on clinical characteristics, two groups of patients were treated either to accelerated partial breast irradiation (APBI) or a BOOST followed by whole breast radiation therapy (WBRT). Main inclusion criteria for APBI patients were: (a) signature of informed consent; (b) indication for breast conservative surgery; (c) age $\geq$ 60 years; (d) histology: CDI or other favourable histology; (e) unicentric and unifocal tumor; (f) negative margins ($\geq$2 mm); (g) sentinel lymph node negative; (h) ER negative; (i) WBRT contraindicated. Patients unsuitable for APBI were offered IORT as boost. Doses administered for APBI and BOOST were 20 Gy and 10–20 Gy, respectively
Results. 9 out 15 patients were derived to APBI and 6 to Boost plus WBRT; however, surgery finally demonstrated that some patients did not meet criteria and finally we did 4 APBI, 10 boost + WBRT and 1 EBRT. In all cases analyzed, the most frequent toxicity associated to the treatment was: seroma, hyperpigmentation, edema and fibrosis. After a minimum follow-up of 12 months (median 24) no local relapses were observed.
Conclusions. Although the information was based from an extremely limited source of patients we can conclude that IORT using the Intrabeam System is a suitable treatment for early stage breast cancer in appropriately selected patients according to ASTRO or ASTRO guidelines.

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Intraoperative radiation therapy (IORT) for early stage breast cancer: An update of a contemporary institutional experience (2009–2012)

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Purpose. To evaluate feasibility, tolerability and cosmetic outcome of intraoperative radiation therapy (IORT) as an exclusive post-surgery treatment or anticipated boost of early stage breast cancer (BC).
Patients and methods. From February 2009 to December 2012, 33 eligible patients were treated with breast-conserving surgery followed by IORT to the reconstructed tumor bed delivered using a linear accelerator. The doses were 21 or 10 Gy depends on results of sentinel lymph nodes biopsy. The clinical stages of patients were: 29 (87.9%) Stage I (cT1cN0) and 4 (12.1%) Stage IIA